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United States
Department of
Agriculture
Forest Service
Durango, Colorado

DRAFT REPORT

South San Juan Wilderness Expansion Study Area

Pagosa Ranger District
San Juan National Forest
Rio Grand, Mineral, Conejos
And Archuleta Counties
Colorado

A13.92/2:

DRAFT REPORT

SOUTH SAN JUAN
WILDERNESS EXPANSION STUDY AREA

May 1982

SAN JUAN NATIONAL FOREST

PAGOSA RANGER DISTRICT

RIO GRANDE, MINERAL, CONEJOS, AND ARCHULETA COUNTIES

COLORADO

DRAFT REPORT

South San Juan Wilderness Expansion Study Area
San Juan National Forest

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CHAPTER I

PURPOSE AND NEED

INTRODUCTION

The South San Juan Wilderness Expansion Study Area (WSA) was established by Congress in Public Law 96-560, known as the Colorado Wilderness Act of 1980. The Act requires the Secretary of Agriculture to review the WSA and make a recommendation as to its suitability or unsuitability for inclusion in the National Wilderness Preservation System (NWPS) by December 31, 1983. This report, although not a decision document as such, discloses environmental consequences of implementing the proposed action and alternatives to it. Environmental consequences relating to land and activities of other Federal, State and local agencies are also discussed. The Forest Service recommendation applies only to lands under its jurisdiction and will be documented in a Record of Decision.

This summary of information, which relates directly to the South San Juan Wilderness Expansion Study Area, is taken from the draft Environmental Impact Statement for the San Juan National Forest Land and Resource Management Plan and the Forest Plan planning records.

NATURE AND PURPOSE OF ACTION

The South San Juan Wilderness Expansion Study Area was identified as a potential wilderness area several years ago. Its roadless and undeveloped character caused it to be included in the first Forest Service Roadless Area Review and Evaluation (RARE) in 1973. The purpose of RARE was to identify and inventory roadless and undeveloped areas which might be suitable candidates for inclusion in the National Wilderness Preservation System (NWPS). The WSA was identified as a candidate.

In 1977 a subsequent review, RARE II, was implemented to identify (1) areas suitable for inclusion in the National Wilderness Preservation System; (2) areas needing no further consideration for wilderness; and (3) areas that should be studied further. As a result of the RARE II review, the WSA was not recommended to Congress for inclusion in the NWPS. Congress, however, formally established the South San Juan Wilderness Expansion Study Area.

This summary report consolidates and discloses the analysis of the suitability or unsuitability of the WSA for inclusion in the NWPS.

VICINITY

The South San Juan Wilderness Expansion Study Area is actually composed of two separate areas, one adjoining the north and one adjoining the south side of the South San Juan Wilderness Area. Both areas lie entirely within the Pagosa Ranger District of the San Juan National Forest. The northern portion is referred to as the Montezuma Peak area and consists of 13,000 acres in Rio Grande, Archuleta, Mineral, and Conejos Counties. The southern portion is referred to as the V-Rock Trail area and consists of 19,800 acres mostly in Archuleta County. A

small portion lies within Conejos County. Figure I-1 is a vicinity map for the WSA, showing its location in relation to the Four Corners Area. Figure I-2 is an area map showing the boundaries of the WSA. The area lies approximately 20 miles east of the town of Pagosa Springs and entirely to the west of the Continental Divide.

SCOPE OF ISSUES TO BE ADDRESSED

Public issues to be addressed were identified through public involvement efforts associated with the Forest Plan. In the initial phase of the process, Federal, State and local agencies and the general public were asked to validate previously identified issues and define new ones. These were then grouped according to similarity in content. Some of these relate directly to the suitability or unsuitability of the WSA for inclusion in the NWPS, and these are listed below:

-The South San Juan Wilderness Expansion Study Area should be made a wilderness. The WSA is beautiful and wildlife is abundant.

-There is enough or too much wilderness already; no further areas should be designated.

-With or without wilderness designation, mineral resources must still be available for exploration, discovery, and development.

-The WSA is a scenic area that is important wildlife habitat for many species of both big game and nongame wildlife. It includes important habitat for endangered and threatened species, including peregrine falcon and grizzly bear, as well as a good fishery. It must be protected through wilderness designation.

Comments made on the WSA in RARE II are found in the planning records on file in the Forest Supervisor's Office, Durango, Colorado.

STATE AND LOCAL GOVERNMENT POLICIES

The 1981 Colorado Comprehensive Outdoor Recreation Plan (SCORP) developed by the Colorado Division of Parks and Recreation, identifies recommendations for meeting major recreation needs within the State. The SCORP is based on an analysis of recreation opportunities supplied not only by the State, but by the private sector and other levels of government as well. The SCORP divides the State into 13 Planning Regions, and the WSA falls into two of these.

Most of the WSA is in Planning Region 9, which includes Archuleta County. The remainder is in Planning Region 8, which includes Conejos, Rio Grande, and portions of Mineral County. The SCORP identifies activities on Forest Service land within these regions having significantly greater public use than current facilities can accommodate. For both Regions 8 and 9, these "needed" opportunities include back-country camping, picnicking, nature study, and four-wheeling. The SCORP recommends that the Forest Service focus priorities on providing these needed recreational opportunities.

FIGURE I-1

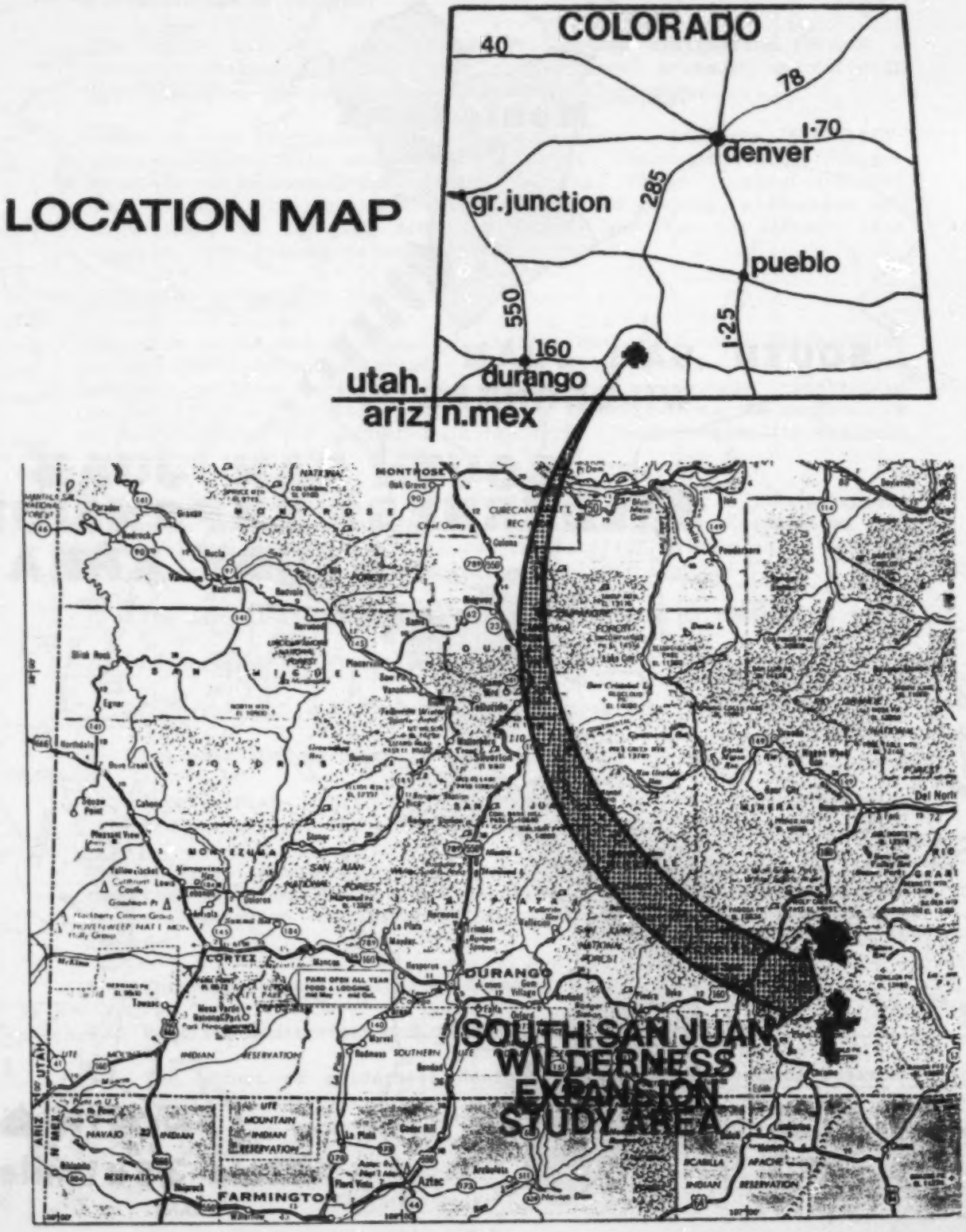
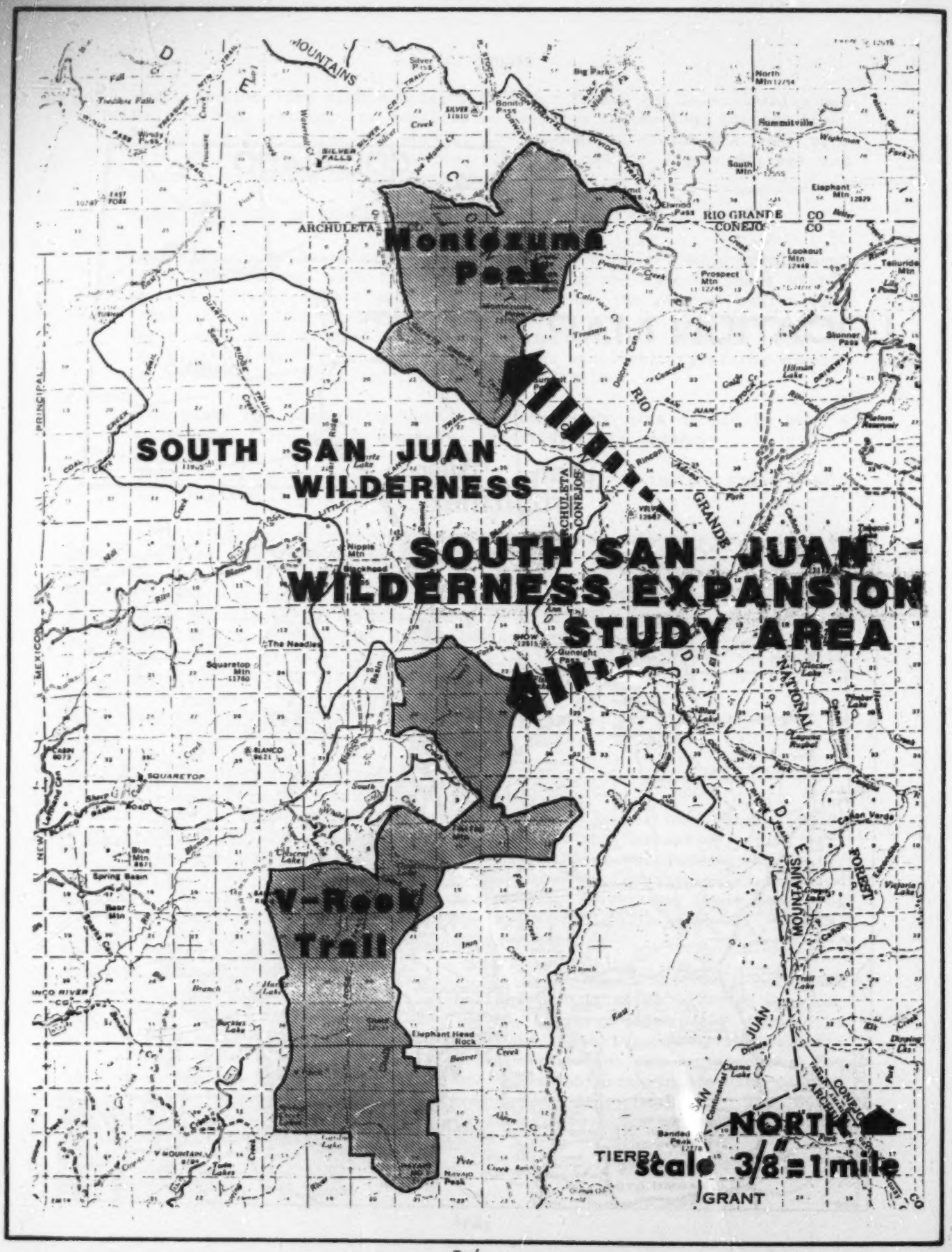

LOCATION MAP
COLORADO
40
78
I-70
denver
285
gr. junction
pueblo
550
I-25
160
durango
utah.
ariz.
n.mex
SOUTH SAN JUAN WILDERNESS EXPANSION STUDY AREA
CORTEZ
DURANGO
FARMINGTON
MONTROSE
SAN JUAN NATIONAL FOREST
UTE MOUNTAIN INDIAN RESERVATION
NAVAJO INDIAN RESERVATION
MESA VERDE NATIONAL PARK

FIGURE I-2


Montezuma Peak
SOUTH SAN JUAN WILDERNESS
SOUTH SAN JUAN WILDERNESS EXPANSION STUDY AREA
V-Rock Trail
NORTH
Scale 3/8" = 1 mile

Of the counties having land in the WSA, only Conejos County has a land use plan containing policy statements relative to wilderness. These statements are as follows:

-The County will not agree to any wilderness designation without a thorough analysis of the impact on the local economy, recreational opportunities, and future mineral resource development.

-Prior to any "major change" in State or Federal land use, the appropriate agency shall meet with the County Commissioners to discuss possible environmental and economic impacts. "Major changes" include: road closures, closing an area to hunting and fishing, wilderness designations, or changing from one major land use to another (for example, from grazing to recreation).

WILDERNESS SUITABILITY CRITERIA

Standards to be met by areas in the National Wilderness Preservation System (NWPS) were established in the 1964 Wilderness Act. Forest Service policies require that an area's wilderness capability, availability, and need be evaluated prior to determining the suitability or unsuitability for inclusion in the NWPS. These suitability criteria are defined as follows:

Capability: Capability indicates the degree to which an area possesses the basic characteristics necessary for wilderness designation and manageability without regard to availability for wilderness or need as wilderness. Indicators of wilderness capability include:

1. The natural integrity and apparent naturalness of the area.

2. Outstanding opportunities for solitude.

3. Opportunities for a primitive and unconfined type of recreation.

4. Manageability of the area as wilderness.

5. Supplemental attributes such as the presence of outstanding ecological, geological, scenic, or historical features.

Availability: Availability indicates the degree to which an area can be committed to wilderness purposes in light of competing demands for other resource uses of the area. Indicators of wilderness availability include:

1. The value of the area as wilderness.

2. Existing constraints and encumbrances on the land.

3. The effect of wilderness designation and management on adjacent lands.

Need: Need indicates the presence of clear evidence supporting current or future public need for additional designated wilderness in the Nation, the Region, and the State. In determining need, consideration is given to whether the tangible and intangible wilderness values determined in the capability analysis outweigh the potential value of nonwilderness resource uses. Indicators of the need for wilderness include:

1. Other wildernesses in the area.

2. Present and anticipated visitor pressure on other wildernesses in the area.

3. Opportunities for unconfined outdoor recreation experiences on nearby lands.

4. Ability of plant and animal species on the area to compete with people and projects.

5. The need to provide sanctuary for species that are unable to survive in less primitive surroundings.

6. The ability to provide for preservation of unique land form types and ecosystems.

CHAPTER II

ALTERNATIVES

OVERVIEW

Because the Colorado Wilderness Act of 1980 directed the Forest Service to address the suitability or unsuitability of the South San Juan Wilderness Expansion Study Area for inclusion in the National Wilderness Preservation System, two alternatives for the area are to be considered: 1) a recommendation as suitable for wilderness designation, 2) a recommendation as unsuitable. The Act also provides that wilderness potential be maintained during the study period.

The analysis of suitability or unsuitability of the South San Juan Wilderness Expansion Study Area was done through the San Juan National Forest Land and Resource Management Planning process now under way. In the draft Environmental Impact Statement (EIS), which discloses environmental consequences of the Proposed Action and its alternatives, both the suitability and unsuitability of the WSA are discussed in detail in the context of the overall management of the Forest. A recommendation will be made in the Record of Decision of the final EIS for the Forest Plan. This recommendation will receive further review and possible modification in the offices of the Chief of the Forest Service, the Secretary of Agriculture, and the President of the United States. The President will transmit the Administration's final recommendation to Congress. Final decisions on wilderness designation have been reserved by Congress.

"SUITABLE FOR WILDERNESS DESIGNATION" ALTERNATIVE

This alternative would involve a recommendation to Congress that the entire South San Juan Wilderness Expansion Study Area (32,800 acres) is suitable for inclusion in the National Wilderness Preservation System.

"UNSUITABLE FOR WILDERNESS" ALTERNATIVE

This alternative would indicate that the entire WSA is unsuitable for inclusion in the National Wilderness Preservation System and should be managed for non-wilderness purposes. After Congressional concurrence, management of the area would then be dictated by the San Juan National Forest Land and Resource Management Plan. Estimation of resouce outputs and costs associated with this alternative is based upon the resource development under the proposed action of Forest Plan. No time lag was assumed in converting from current management to the proposed action.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table II-1 summarizes the environmental consequences of both the suitable and unsuitable alternatives for the WSA. Shown are selected outputs and values which would be derived from managing the area as either wilderness or non-wilderness. A more detailed discussion is presented in Chapter IV.

TABLE II-1

Summary of Environmental Consequences (Outputs are per annum)

Resource	Suitable Alternative #1	Unsuitable Alternative #2
WILDERNESS		
Potential loss of wilderness character	None	Increased
Addition to National Wilderness Preservation System	32,800 acres	-0-
RECREATION OPPORTUNITY		
Dispersed recreation opportunity	-0-	42.7 Thousand Visitor Days
Wilderness recreation opportunity	15.6 Thousand Visitor Days	-0-
Area open to off-road vehicle use	-0-	20,125 acres (estimated maximum)
FISH AND WILDLIFE		
Habitat improvement opportunities	Limited	Many
RANGE LIVESTOCK		
Grazing use	1,740 Animal Unit Months	1,820 Animal Unit Months
Grazing Capacity	Decreased	Increased
TIMBER		
Capable forest land	-0-	22,131 acres
Long-term sustained yield potential	-0-	2.4 Million Board Feet

TABLE II-1 (Continued)

Summary of Environmental Consequences (Outputs are per annum)

Resource	Suitable Alternative #1	Unsuitable Alternative #2
WATER QUALITY		
Risk of pollution caused by recreation and other use	Increased	Increased
Risk of pollution caused by surface disturbing activities	Decreased	Increased
WATER USES		
Feasibility of planned or proposed water developments	Not feasible at this time.	Not feasible at this time.
Likelihood of development of water storage facilities	Low	Low
Effects on existing water uses	None	None
WATER QUANTITY		
Water yield	49,335 Acre-Feet	50,557 Acre-Feet
MINERALS		
Cost of exploration	Increased	No change
Likelihood of significant mineral discovery and development	Foregone in Future	Moderate
Costs of administering mineral activity	Increased	No change
LANDOWNERSHIP		
Liklihood of future private ownership under Mineral patents	Decreased	No change
PROTECTION		
Integrated Pest Management Opportunities	Decreased	Increased

SUMMARY OF WILDERNESS SUITABILITY OR UNSUITABILITY ANALYSIS

Suitability for wilderness requires that an area be found (1) capable, (2) available, and (3) needed for wilderness. A summary of this analysis follows.

IS THE AREA CAPABLE FOR WILDERNESS DESIGNATION?

In order to address this criterion, both physical characteristics and manageability were evaluated. The Wilderness Attribute Rating System (WARS) was developed in RARE II, and ratings were reconfirmed during the latest Forest planning effort. They indicate relative wilderness quality as defined by the criteria in the 1964 Wilderness Act. The WARS rating for the 300 RARE II areas in Colorado ranges from 12 to 26 with a median of 19. The rating scale itself ranges from 4 to 28. The Montezuma Peak areas (RARE II Study Area No. D-284) has a WARS rating of 20 and the V-Rock area (RARE II Study Area No. E-284) has a rating of 17. These ratings place the areas in the 15th and 25th highest positions of the 38 identified RARE II areas on the San Juan National Forest, indicating that the WSA has moderate wilderness capability as defined by its physical characteristics. (Detailed WARS worksheets are in the planning records on file in the Forest Supervisor's Office.)

With respect to manageability, the area again has moderate wilderness capability. Significant mineral activity, which is a possibility given the minerals potential of the WSA, could have significant impacts on the wilderness character of the area. Extensive mineral activities and associated developments would limit the ability to manage the area as an enduring wilderness resource as well as the ability to protect and manage its natural character. Boundaries of the Montezuma Peak area are relatively well defined by topographic features on all sides. In the V-Rock Trail area, boundaries are relatively well defined on the east and north sides, although portions of the western and southern boundaries are somewhat less discernable from a geographic standpoint. Generally, most boundaries can be located to avoid conflicts with outside uses, to be readily described and recognized on the ground, to conform with existing topographic barriers to protect the wilderness environment, and to provide adequate opportunities for public access.

From the standpoint of both the physical characteristics of the area as well as its manageability as wilderness, the area is capable of wilderness designation.

IS THE AREA AVAILABLE FOR WILDERNESS?

In order to address this criterion, the values of the area as wilderness and as non-wilderness were compared. Included in the analysis were values for water, recreation, timber, grazing, and minerals outputs foregone as well as wilderness and recreation values accrued under a wilderness designation. This analysis is described in Chapter IV, and a summary follows:

The WSA contains approximately 22,100 acres of land capable of timber production which could produce a maximum sustained yield of 2.4 million board feet (MMBF) per year, all of which would be foregone under the

suitable alternative. This figure compares with a 1980 Forest-wide sale offering volume of approximately 40 MMBF. Demand for this volume is relatively high at present in spite of the depressed market for lumber. Operational mills near Pagosa Springs and in Chama, New Mexico, both use the major timber species growing on the WSA, and have purchased timber from sales much farther away from the mills than the WSA. Therefore, there would most likely be little difficulty in selling timber from the WSA under the unsuitable alternative.

A joint study of mineral resources in the area ("Mineral Resources of the Chama-Southern San Juan Mountains Wilderness Study Area," U.S. Geological Survey and U.S. Bureau of Mines, Open-file Report 77-309, 1977) indicates a fair potential of significant quantities of oil and gas trapped beneath the surface in the southwestern portion of the V-Rock Trail area. Two currently non-producing oil fields are located less than four miles from the boundary, and various other geologic factors suggest the possibility of significant oil and gas deposits. No significant potential is indicated for this area with respect to geothermal, uranium, or metallic mineral resources.

For the Montezuma Peak portion of the WSA, the study indicates good potential for buried deposits of copper and molybdenum. The market conditions for these two minerals are poor at present, although they are expected to improve in the future. Two major companies have recently done exploratory core drilling on their mining claims in the area, but results of the exploration are not yet available. The U.S.G.S., Bureau of Mines study also indicates that the area contains deposits of zinc, silver and lead. There are no indications of significant deposits of leasable minerals in the Montezuma Peak area.

From a recreation standpoint, current use is light relative to other wildernesses and dispersed recreation areas in the vicinity. Under the suitable alternative, the area would accommodate 15,600 recreation visitor days annually, whereas under the unsuitable alternative, 42,700 RVD's per year could be accommodated. This difference of 27,100 RVD's is not presently of major significance because of the relative abundance of such opportunities elsewhere on the Forest, although this condition is subject to change in the future. Under the unsuitable alternative, the area would provide up to 21,000 acres of motorized recreation opportunities, all of which would be foregone under the suitable alternative. As designated wilderness, the entire 32,800 acres would be available for non-motorized primitive or semi-primitive recreation opportunities, up to two-thirds of which would be foregone under the unsuitable alternative.

There would be 1,100 acre-feet of water and minor amounts of livestock grazing and other resources foregone under the suitable alternative. There are no major constraints or encumbrances on the land, nor would wilderness designation adversely effect management on adjacent lands.

Because of the potential for significant locatable and leasable mineral deposits in the WSA, and because of the timber foregone under the suitable alternative, it cannot be said that the WSA is available for wilderness. Mineral exploration is currently taking place and will most

likely increase as demand for metals and energy increases. Although some mineral activity would be allowed to continue under the suitable alternative, it would not be compatible with the wilderness environment.

IS THE AREA NEEDED FOR WILDERNESS?

The WSA is located such that there are over 1,643,000 acres of wilderness within a 100-mile radius. An additional 587,000 acres are being studied as to their suitability or unsuitability for inclusion in the National Wilderness Preservation System (NWPS). Considering that land in the NWPS serves a variety of users, including national and regional publics, no clear statement can be made concerning what constitutes sufficient wilderness land area. However, an analysis of present and anticipated use levels on wilderness and other areas in the vicinity having similar landform and ecosystem characteristics gives an indication of relative need. Based on such an analysis, the South San Juan Wilderness Expansion Study Area is not needed as an addition to the National Wilderness Preservation System.

PREFERRED ALTERNATIVE

Based on capability, availability, and need, as well as overall management direction outlined in the Forest Plan, the South San Juan Wilderness Expansion Study Area is recommended as unsuitable for addition to the National Wilderness Preservation System.

CHAPTER III

AFFECTED ENVIRONMENT

The suitability or unsuitability of South San Juan Wilderness Expansion Study Area (WSA) for wilderness designation is a function of the physical, social, and economic environment within and surrounding the WSA. This chapter describes the various environmental factors related to this suitability determination. Chapter IV describes the effects on the environment resulting from implementation of the alternatives.

PHYSICAL SETTING

The WSA is composed of two separate geographic entities, the Montezuma Peak area on the north and the V-Rock Trail area on the south. These are separated from one another by the 130,000 acre South San Juan Wilderness Area. These two areas are similar with respect to physical, biological, social and economic aspects, and for the most part, the following discussion applies equally to both areas. Where distinctions exist, these are discussed.

VEGETATION

Vegetation on the area varies with elevation which ranges from 8,200 feet to over 13,000 feet. Coniferous vegetation occurs over 30 percent of the area, with Engelmann spruce being the most predominant species. Aspen is prevalent below timberline, covering approximately 17 percent of the area. Another 10 percent of the area is grassland, with the remainder being mostly rocky or barren areas, interspersed with patches of brush or bogs. Thurber fescue is the most abundant vegetation in non-timbered areas below 10,500 feet elevation. Forbs and grasses comprise the understory in timbered areas, whereas above timberline, alpine grasses, forbs, and willows prevail. Table III-1 lists the frequency of occurrence of various ecosystem types on the WSA in comparison with other wildernesses. The table indicates that the area is not unique with respect to vegetative composition, with the possible exception that the aspen type is more prevalent.

There are no known threatened or endangered plants on the area.

LANDFORM

The WSA is situated within the San Juan volcanic section of the Southern Rocky Mountains. In the Montezuma Peak area, landform is characterized by highly dissected drainages with steep canyon side slopes. The Continental Divide borders the area along the east, and drainages flow predominantly north to northwest. Much of the area is typical of alpine ecosystems. The V-Rock Trail area is bordered on the east by the Chalk Mountains, which form a hydrographic divide between the Rio Blanco drainage on the west and the Navajo River drainage on the east. Drainages flow north and south, and steep canyons are common.

TABLE III-1

Representative Ecosystems in the South San Juan Wilderness Expansion Study Area and Nearby Wildernesses

Ecosystem	South San Juan Wilderness Expansion Study Area	Weminuche	South San Juan	Lizard Head	La Garita
ALPINE	Common	Common	Common	Common	Extensive
SUBALPINE	Common	Common	Common	Common	Common
SPRUCE-FIR	Common	Common	Common	Uncommon	Common
DOUGLAS-FIR	Uncommon	Uncommon	Uncommon	Uncommon	Uncommon
ASPEN	Common	Uncommon	Uncommon	Uncommon	Uncommon
PONDEROSA PINE	Uncommon	Uncommon	None	None	None
LODGEPOLE PINE	None	None	None	None	Uncommon

KEY

Extensive - Type occurs on more than 50 percent of the area.
Common - Type occurs on 10 to 40 percent of the area.
Uncommon - Type occurs on less than 10 percent of the area.
None - Type does not occur in area.

GEOLOGY

The WSA is situated at the southern-most edge of the San Juan Mountains, which are the result of extensive volcanic activity covering thousands of square miles in the region. Extensive folding and faulting are responsible for the entrapment and retention of oil and gas in the vicinity of the WSA. More recently, surface characteristics have been modified by both piedmont and alpine glaciation. After the glaciers melted, oversteepened valley walls were subject to landsliding that broadened many of the valleys in the area. Rock outcrops and talus slopes are common throughout the area.

SOILS

Soil characteristics and potentials vary considerably as a function of landform, slope, and parent material.

Soils within the WSA have been mapped at a relatively high level of intensity as part of the National Cooperative Soil Survey project. Results of this survey appear in the Soil Survey of the Piedra Area (Bauer, R.F., USDA Soil Conservation Service and Forest Service, April 1981). The report identifies three major soil series within this area. A brief description of each of these follows:

-The Leal Series - These soils occur on the steep mountain slopes and glacial troughs within the area. They are deep, coarse textured soils developing from materials weathered from andesite and quartz latite. Depth to bedrock varies from 40 to 60 inches. These soils are productive for timber, and there are no serious limitations on slopes less than 30 percent. On slopes above 30 percent, there is a high erosion hazard, and on slopes above 65 percent there is a very high erosion hazard along with a high hazard for mass slope failure.

-The Grenadier Series - These soils are associated with the Leal soils and occur on similar landforms and slopes. They differ from the Leal soils in that they contain more rocks and stone and are only moderately deep. Depth to bedrock varies from 30 to 40 inches. These soils are also productive for timber. There are no serious limitations that would limit management activities.

-The Castelleia Series - These soils occur mainly in the northwest portion of the V-Rock trail area around the vicinity of Opal Lake and Leche Creek. They are medium textured deep soils developing in old landslide materials that overlay shale and sandstone at depths of 5 to 50 feet. These are relatively productive soils for range and timber. There are no special limitations on slopes less than 25 percent. There is a moderate to high hazard of cut slope failure and mass wasting.

The above soils occur in relatively equal amounts throughout the Wilderness Study Area. Included with these soils are rock outcrops of igneous materials and talus slopes. These may make up 15 to 20 percent of the area. These areas are typically near vertical and support little or no vegetation.

SOCIAL AND ECONOMIC SETTING

The South San Juan Wilderness Expansion Study Area is within the Pagosa Human Resource Unit (HRU), one of the three areas of analysis within the area of social and economic influence of the San Juan National Forest. This area, along with the Animas and Montelores HRU's, was delineated to assist in designing management actions that would be responsive to local issues, conditions, and needs. The Pagosa HRU contains portions of Hinsdale and Mineral Counties, and virtually all of Archuleta County.

POPULATION, EMPLOYMENT AND INCOME

The population of Archuleta County grew by 33 percent between 1970 and 1980, from 2,733 to 3,631. State projections call for the population to double by the year 2010. Employment in the area is primarily in ranching, logging, retail trade and tourism sectors; therefore, much of this employment is seasonal. Unemployment, a chronic problem, was nearly 12 percent in 1980. The average per-capita income in Archuleta County in 1980 was $5,222.

LIFESTYLE

The predominant lifestyle in the Pagosa HRU is characterized by its rural mountain setting, with many of the residents dependent on the National Forest for part or all of their livelihoods. Ranching, logging and tourism, including outfitter-guide operations, are all occupations closely associated with management of the Forest. Many newer residents of the HRU are either retirees or "immigrants" from large urban areas who moved to the area specifically for the rural mountain lifestyle. These newer residents tend to be more oriented toward recreational uses of the National Forest rather than toward commodity production.

ATTITUDES, BELIEFS AND VALUES

Public awareness of the recreational environment of the National Forest is increasing with immigration to the area. There is a changing public attitude toward protecting and preserving rather than developing and using resources such as timber, forage and minerals. In the future, direct conflicts can be anticipated between those who hold "preservation attitudes" and these who believe resources should be developed to meet local income and employment needs.

SOCIAL ORGANIZATION

While most of the community services found in other areas are available in the Pagosa HRU, rapidly rising populations are placing strains on school systems, medical facilities, street and road maintenance, and law enforcement capabilities.

POPULATION AND LAND USE

Until a few years ago, Hispanics constituted a majority of the population of Archuleta County. Recent population growth has changed this mix, but the Hispanic influence is still extremely strong. Population

growth has created a significant shift in land uses, with the conversion of ranchland into housing subdivisions and resorts.

RESOURCE AND SUPPORT ELEMENTS

RECREATION

Developed recreation is non-existent within the WSA. There are no recreation structures and no developments other than trails. Recreation use is light. Current use, which is approximately 5,200 recreation visitor days (RVD's) annually over the 32,800 acre area (0.152 RVD's per acre per year), is low compared to other nearby wilderness and dispersed recreation areas in the San Juan National Forest. There are approximately 35 miles of trail within the WSA.

Recreation activities include big game hunting, hiking, horseback riding (with associated camping), viewing scenery, nature study, and cross-country skiing. Other activities occurring in limited amounts include fishing and motorcycle riding on trails. This latter activity is limited by rugged terrain and lack of suitable trails.

The South San Juan Wilderness Expansion Study Area offers approximately 6,300 acres of primitive recreation opportunities and approximately 26,500 acres of the semi-primitive non-motorized opportunities. Use is currently 32 percent of capacity.

Visual Resource

The landscape of the WSA is dominated by geologic formations including mountain peaks, talus slopes, cliffs, and deep canyons. Vegetation is highly varied with deciduous trees and brush contrasting with coniferous forest especially during the fall months. It is further diversified by natural openings and distinctive contrasts with bare rock. Alpine lakes, scattered ponds, and cascading streams comprise the water features of the WSA. Thirty to forty percent of the WSA can be characterized as having distinctive or outstanding scenic quality. The remainder is common to the characteristic landscape of the area.

Cultural Resource

There have been no extensive cultural resource surveys undertaken in the WSA, although various aboriginal camps have reportedly been discovered in the Quartz Creek area. This indicates a likelihood that other camps, activity areas, and associated evidence may exist within the WSA, although it is unlikely that such are numerous or extensive. The WSA is evaluated as being low to moderate in archaeologic sensitivity.

A travel corridor along the east fork of the San Juan River from Elwood Pass to the vicinity of the Silver Falls Guard Station is an important historic area existing in and adjacent to the WSA. This corridor forms the northern boundary of the Montezuma Peak portion of the WSA. It was the route of the first road and telephone line from the San Luis Valley to Pagosa Springs and was used from 1879 until 1911 when it was abandoned as a major travel route. There are some cabin ruins located in

the corridor associated with a small, short-lived mining camp at Elwood. Some features associated with early seasonal livestock grazing and mining, such as aspen art and inscriptions, stock driveways, camps, and mining shafts are present. The WSA is evaluated as being of low historic sensitivity, with the exception of Elwood Creek on the east fork of the San Juan River, which is of high sensitivity.

The WSA is situated in the historic territory of the Ute Indians, although archival research and contacts with members of the Southern Ute and Ute Mountain Ute Tribes have failed to identify any specific sites important to the Ute peoples.

WILDERNESS

The WSA is primarily natural in character. There are no known "imprints of man" that would require rehabilitation under the suitable alternative. Certain areas have been used for grazing of livestock, but this is not evident to the casual observer.

Opportunities for primitive and unconfined recreation are plentiful. The WSA has a varied topography, with areas of high vegetative diversity, abundant wildlife, open parks, and portions of dense forest. These are attractive to backpackers, rock climbers, fishermen, hunters, horseback riders and hikers. Outstanding opportunities for solitude exist.

FISH AND WILDLIFE

Big Game

Big game species inhabiting the WSA include elk, mule deer, black bear, turkey, and possibly mountain lion. The area may contain winter den sites for black bear. Rocky Mountain bighorn sheep utilize portions of this WSA during summer months. Presently, winter range for bighorns within the WSA appears to be limited.

Small Game

Small game species include band-tailed pigeon, snowshoe hare, cottontail rabbit, blue grouse, white-tailed ptarmigan, and Abert's squirrel. Utilization is generally year round except for the band-tailed pigeon which is a summer resident.

Non-game

Species commonly found in the mixed conifer and spruce-fir zones of Colorado are found in this WSA. Commonly observed species include coyote, ground squirrel, marmot, pika, raven, Canada jay, mountain bluebird, and water ouzel. The more mobile species utilize the WSA primarily during spring, summer and fall. Most of the smaller rodents and some birds utilize the WSA year round.

Threatened and Endangered (T&E) Species

Although there are no known federally listed T&E species inhabiting the unit, most of this WSA is within the boundaries of a cooperative study between the Colorado Division of Wildlife, U.S. Forest Service, and U.S. Fish and Wildlife Service to determine the presence or absence of grizzly bear and to determine the extent of and suitability of the WSA for grizzly bear habitat. This study was prompted by the killing of a sow grizzly in 1979 at the head of the Navajo River. First year study results have not yet been reported, although preliminary results confirm that there is acceptable habitat for grizzly bear in the unit. There is acceptable habitat for wolverine but no known confirmed recent sightings. The wolverine is on the Colorado list of threatened species.

Fish

Fish species in the area include cutthroat, rainbow, and brook trout. Some waters contain spawning habitat with some natural reproduction, although supplemental stocking by the Colorado Division of Wildlife is required on a periodic basis to maintain fishable populations under present harvest regulations.

RANGE

Cattle and recreation horses graze about 30 percent of the WSA. Most of the range is in satisfactory condition and the trend is for conditions to remain stable. Current grazing totals about 1,500 Animal Unit Months annually. There are relatively few range improvements in the area, and these are limited to allotment boundary fences, short drift fences, and spring developments.

In the Montezuma Peak area, grazing takes place on portions of two allotments, one of which is a sheep allotment being extensively managed, and one of which is a cattle allotment being intensively managed under a deferred rotation system. In the V-Rock Trail area, grazing is taking place on portions of seven allotments, one of which is a vacant sheep allotment. The other six are cattle allotments, one of which is being intensively managed under a deferred-rotation system. The remaining five are being extensively managed under a continuous grazing system.

TIMBER

Of the 32,800 acres within the WSA, 22,131 acres (67 percent) are classified as "capable" of timber production. Capable forest land is land that has the biological potential to produce at least 20 cubic feet of wood per acre per year. Productivity is average for the Forest, and there has been no past timber harvesting activity. Ninety-five percent of this capable timber land is sawtimber. The predominant timber type is spruce-fir, which covers 69 percent of the capable forest land. The distribution by timber type and size class is shown below.

Acres Capable of Timber Production by Type and Stand Size Class

Type	Stand Size Class				
	Non-stocked (0-300 trees/ acre)	Seedling/ sapling	Pole timber	Saw-timber	Total
Ponderosa pine	-	-	-	-	0
Spruce-fir	197	-	905	14,180	15,282
Douglas-fir	-	-	-	1,852	1,852
Aspen	-	-	-	4,997	4,997
Total	197	0	905	21,029	22,131

The inventory of existing timber on capable forest land within the WSA is 63.9 million cubic feet or 260.5 million board feet. Most of the inventory volume is in the spruce-fir type. The distribution of inventory volume by timber type is shown below:

Inventory Volume by Timber Type

Timber Type	Million Cubic Feet	Million Board Feet
Ponderosa pine	-0-	-0-
Spruce-fir	56.6	234.4
Douglas-fir	3.9	16.6
Aspen	3.4	9.5
Total	63.9	260.5

Capable forest land occurs in roughly equal amounts on each slope class. However, in the Montezuma Peak unit, 65 percent occurs on slopes greater than 60 percent and in the V-Rock Trail unit, 54 percent occurs on slopes less than 30 percent. This breakdown is shown below.

Capable Forest Land Acres By Type And Slope Class

Timber Type	Slope Class 0-30%	30-60%	60% +	Total
Ponderosa pine	-	-	-	0
Spruce-fir	3,774	6,174	5,334	15,282
Douglas-fir	683	1,136	33	1,852
Aspen	3,937	807	253	4,997
Total	8,394	8,117	5,620	22,131

WATER

Water Yield

Water yield from the WSA is estimated at 49,355 acre-feet per year, for an average of 1.5 acre-feet per acre per year. Water from the Montezuma Peak area flows into the east fork of the San Juan River via Quartz Creek, Lost Creek, Bear Creek, and Elwood Creek. The northern three-fourths of the V-Rock Trail area drains northward into the Rio Blanco River via Fish Creek, South Creek, Castle Creek, and Leche Creek. The southern fourth (below V-Rock Trail) is drained by the little Navajo River. Water uses within the study area include small amounts of domestic livestock and wildlife drinking and recreational and riparian habitat maintenance.

Downstream water uses on the East Fork of the San Juan, Rio Blanco, and Little Navajo Rivers include pasture irrigation, domestic livestock and wildlife drinking, and domestic (residential and campground) uses. Non-consumptive uses include recreation (fishing and scenic viewing) and maintenance of both aquatic and riparian habitat as well as stream channel stability. Anticipated future uses include additional domestic and irrigation use and potential energy development.

Maximum potential water yield increases could result from clearcutting 20 percent of the accessible spruce-fir and aspen stands (for transpiration reduction and snow catchment) and maintaining snowfences in 25 percent of the alpine area. Potential water yield increase could reach 1,450 acre-feet per year (1,125 in V-Rock Trail and 325 in Montezuma Peak) for an increase of 3 percent.

No water resource measurement sites (streamflow, climate, snow depth) occur within the WSA.

Additional potential for water yield increase may occur by cloud seeding with silver iodide crystals. A study by the Bureau of Reclamation (Ecological Impacts of Snowpack Augmentation in the San Juan Mountains of Colorado, Steinhoff and Ives, Bureau of Reclamation, U.S. Department

of Interior, Denver, Colorado, 1976) indicates that streamflow increases of 10 percent are possible although snowfall variability in the San Juan makes it difficult to statistically verify water yield increases through this method.

Water Quality

The only water quality data for the WSA is from monitoring near mineral exploration activities by AMAX Exploration, Inc. on Quartz Creek and one of its tributaries. Indications are that water chemistry is highly influenced by the extrusive igneous parent material of the Quartz Creek area. Sediment discharge is low in streams flowing through volcanic formations but increases as streams flow into sedimentary formations (sandstones and shales) at the lower end of the WSA. Except for local acid water conditions, which are diluted out, streams meet Colorado water quality standards for recreation, aquatic life, and municipal and agricultural uses.

MINERALS

Mining and Mineral Leasing Activity

Mining and mineral leasing activity in the WSA is summarized below:

Activity (As of April 30, 1982)	Number	Acres
Patented Mining Claims	2	30
Unpatented Mining Claims	165	3,399
Producing Sites or Known Reserves	0	0
Federal Oil & Gas Lease Applications	3	2,940
Federal Oil & Gas Leases	7	3,320

There has been active exploratory core drilling by two companies on claim blocks within the Montezuma Peak portion of the WSA. This activity may continue through 1982 by at least two separate interests. There is seismic exploration activity adjacent to the boundary of the V-Rock Trail portion of the WSA as well as oil and gas production in nearby fields.

Mineral Potential

Potential for locatable and leasable minerals in the WSA is summarized below:

Area Rated As Having High/Moderate Potential For:	Acres	Percent of Study Area	
Locatable minerals	12,081	36.9	(All of which is in Montezuma Peak Area.)
Leasable minerals	15,632	47.7	(All of which is in V-Rock Trail Area.)

The Montezuma Peak portion of the WSA contains hydrothermally altered rock and a few potentially economic veins containing zinc, silver, and lead. The hydrothermally altered area and an associated aeromagnetic anomaly suggests a large buried porphyry deposit of molybdenum or copper. Evidence also suggests the occurrence of a large porphyry-type sulfide deposit buried 5,000 feet or more below the surface. Associated with this is a chimney-type deposit containing copper above the porphyry-type deposit at an estimated depth of a few hundred feet. There are indications that the area also contains zinc, silver, and lead.

In the V-Rock Trail portion of the WSA, the potential for locatable minerals is low. However, potential for leasable minerals is moderate to high. Significant quantities of oil and gas may be trapped in buried structures. Two known oil fields are within 4 miles of the southern boundary of the WSA. Geologic factors that suggest significant oil potentials are: (1) proximity of source beds capable of generating oil and gas, (2) abundance of porous sands which permit migration and storage, and (3) presence of favorable structural traps similar to those in nearby fields.

The entire WSA is considered to have low or no potential for geothermal resources, uranium, coal or natural gas.

The study report that supports the above information on both portions of the South San Juan Wilderness Expansion Study Area is the Survey Report of the United States Geological Survey Open-File Report 77-309, 1977, Mineral Resources of the Chama-Southern San Juan Mountains Wilderness Study Area, Mineral, Rio Grande, Archuleta, and Conejos Counties, Colorado.

LANDS

Lands Ownership

Total land area within the South San Juan Wilderness Expansion Study Area is approximately 32,800 acres of which 13,000 acres are in the Montezuma Peak portion and 19,800 acres are in the V-Rock Trail portion. There are two patented mining claims covering 30 acres within the Montezuma Peak portion, on which the Forest Service controls surface rights. These have been identified by the Forest Service as land desirable for acquisition. Throughout the remainder of the WSA, lands

are federally owned in both surface and mineral estate and are administered by the Forest Service.

Special Land Uses

Presently there are no improvements authorized by Special Use Permit in the WSA.

Power Withdrawals

There are no power withdrawals within the WSA.

Water Developments

No existing or proposed impoundments, irrigation reservoirs, or distribution systems are located within the WSA. According to Colorado Water Resource Division records, no decreed water rights exist.

FACILITIES

There are three livestock water developments within the WSA. These are relatively small spring developments. There are also approximately 10 miles of allotment boundary and short drift fences that exist for livestock management purposes. There are no additional facilities other than approximately 35 miles of trails, which are maintained by the Forest Service and which are used primarily for recreation and livestock management. The Quartz Creek Trail (No. 571) borders the western edge of the Montezuma Peak area, then traverses through the WSA to its junction with the Continental Divide Trail (No. 813). The Continental Divide Trail itself borders the eastern edge of the Montezuma Peak area. Several trails traverse into and through the V-Rock Trail portion. These are Fish Creek Trail (No. 575), Leche Creek Trail (No. 576), Navajo Peak Trail (No. 577), and V-Rock Trail (No. 578). Road access to the V-Rock Trail portion is provided via the Buckles Lake Road (No. 663) and the Castle Creek Road (No. 770).

PROTECTION

Air Quality

The WSA is designated a Class II air quality area. This classification allows only moderate degradation over baseline concentrations of sulfur oxides and particulate matter.

Fire

Fire has always been a natural component of the ecosystems in the area. A naturally occurring fire regime has the effect of reducing fuels, maintaining wildlife habitat diversity, creating browse, and preventing the attainment of climax vegetation across large areas of land. Although wildfire occurrence is generally low, in recent years natural fires have generally been excluded from the area by intensive control and suppression efforts. Most fires result from lightning strikes and are controlled at less than 10 acres in size.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

This chapter outlines environmental effects that would result from implementing the two alternatives under consideration. It is based on information in Chapter III as well as other information contained in the draft Environmental Impact Statement for the Forest Plan. The first section describes environmental consequences as they relate to individual resources, and the second section deals with overall wilderness suitability.

RESOURCE ENVIRONMENTAL CONSEQUENCES

RECREATION

Under the unsuitable alternative the WSA would be managed as follows: 1,100 acres for rural recreation, 13,000 acres for roaded natural-appearing recreation, 7,100 acres for semi-primitive motorized recreation, and 11,600 acres for semi-primitive non-motorized recreation. Under such a regime, the WSA could accommodate approximately 42,700 recreation visitor days (RVD's) annually while still meeting recreation experience objectives and protecting resource values. Based on a 1980 Resource Planning Act (RPA) Value of $3.00 per RVD, the values of use at capacity is $128,100 annually.

Under the suitable alternative, the WSA would be managed as follows: 26,500 acres for semi-primitive non-motorized recreation and 6,300 acres for primitive recreation. Under this regime, the WSA could accommodate 15,600 RVD's annually while still meeting recreation experience objectives and protecting resource values. Based on a 1980 RPA value of $8.00 per wilderness RVD, the value of use at capacity is $124,800 annually.

Under the unsuitable alternative, new road access in parts of the WSA would serve to increase use in current recreation activities. Hunting, viewing scenery, cross-country skiing, and motorized trail biking would be among the uses that would increase the most. Other activities more associated with semi-primitive recreation, such as hiking and backpacking, would also increase, but to a lesser extent. User conflicts between motorized and non-motorized forms of recreation would increase in proportion to the development of the road system.

Under the suitable alternative there would be a less dramatic increase in all activities, resulting mainly from gradual increases in demand for wilderness recreation. What little motorized recreation occurs would be reduced to zero, although the quality of primitive and semi-primitive activities would remain at high levels. Fishing opportunities are currently limited, and use would not increase dramatically under either alternative.

In summary, the unsuitable alternative would result in a recreation capacity almost three times that of the suitable alternative, and would offer more recreation opportunities in motorized and related activities. The suitable alternative would provide more opportunities for activities associated with primitive and semi-primitive recreation.

Cultural Resources

The suitable alternative would reduce the opportunity for any major archaeological research and data recovery projects. Often such projects require the transport and use of motorized equipment and excavation techniques that would degrade wilderness value. The suitable alternative would substantially constrain the opportunity to develop a major archaeological site as a recreational attraction. However, it is only a remote possibility that significant archaeological properties exist in the WSA that would require such activities. Therefore, adverse effects under the suitable alternative are minor.

The unsuitable alternative could potentially lead to impacts on cultural resources resulting from road construction, timber sales and other developmental activities. Adverse effects under the unsuitable alternative should be minor because of the low probability that significant properties exist.

Effects on known Native American religious values would be non-existent under either alternative.

Visual Resource

Under the suitable alternative, natural landscape character would be maintained primarily by ecological changes. The visual quality objective of preservation would be prescribed for the area to assure naturalness.

Under the unsuitable alternative, a range of visual quality objectives would apply, and some management practices would change existing visual quality. Examples of these practices include road construction and certain timber harvest methods.

WILDERNESS

Since it was first considered for inclusion in the National Wilderness Preservation System (NWPS), the South San Juan Wilderness Expansion Study Area has been managed to retain its wilderness character. Under the unsuitable alternative, mineral activity, timber harvesting, and vegetative management could cause degradation of the solitude, natural integrity and scenic values which presently characterize the area.

The suitable alternative would expand the South San Juan Wilderness and would add spectacular scenery to the NWPS. Recreation experiences provided would be not unlike those presently available in abundance within a 100-mile radius of the WSA. Access is good for both areas of the WSA as they are within 1/8 mile of Forest roads and less than 10 miles from a U. S. Highway.

WILDLIFE

Effects on wildlife under either alternative are difficult to predict. As human activity increases, impacts on wildlife use of the area are inevitable. Deer and elk use portions of the WSA as summer range and as

a migration route. Wildlife impacts would be more significant under the unsuitable alternative because of road construction and other developments. Fish populations and sizes could also be affected by increased pressure on available fisheries, thus increasing the intensity of management needed to maintain stable populations.

However, the unsuitable alternative would make possible an array of management activities that would improve wildlife habitat. Timber harvesting, prescribed burning, and vegetative management projects could be coordinated for wildlife habitat needs. Most favored under this alternative would be those species requiring some mix of early and late successional stages of vegetation for optimum population growth. Those species more adapted to large areas of homogeneous or late successional vegetation would be most adversely affected under the unsuitable alternative. The net effect of this alternative, given fairly productive soils, moderate slopes, or dense tree cover, is that there are good opportunities for managing wildlife habitat and increasing wildlife numbers.

Under the suitable alternative, there would be no major changes in either the numbers or the species of wildlife present. The present natural vegetative diversity resulting from landform, geology and soil types would continue to fulfill habitat niche requirements for species present. Any naturally occurring fires would serve to increase successional diversity, although it is not likely that these would improve conditions significantly across the WSA. Opportunities to improve fish habitat would be precluded under the suitable alternative.

RANGE

In the short-term, livestock use and management activities would not change significantly under the suitable alternative. Use would remain at approximately 1,740 animal unit months (AUM's) per year. Over an extended period of time, however, natural succession would replace deciduous trees and grasslands with coniferous vegetation. With increasing density and crown closure of stands, quantity of understory forage as well as grazing capacity would decrease. Under the unsuitable alternative, manipulation of vegetation resulting from timber, wildlife, and range improvement activities could increase livestock forage, especially in transitional range, to a total of 1,820 AUM's per year for a 4.6 percent increase. This would require additional structural range improvements to utilize the increased forage. Water developments could also be constructed to benefit both range and wildlife, although some livestock fences might inhibit wildlife migration. In summary, neither the suitable or unsuitable alternative would significantly affect current livestock forage, but the suitable alternative would eliminate the option of increasing range livestock forage in the future.

TIMBER

The suitable alternative would result in the reclassification of the timber in the WSA from the "deferred" to the "reserved" category, although under either of these classifications, timber is not suitable for harvest.

The unsuitable alternative would permit timber management on the entire 22,131 acres classified as capable forest land, which has a theoretical maximum annual harvest of 2.4 million board feet per year. It is unlikely timber harvest would occur on all of this area because of steep slopes, fragile soils and low volumes. Actual timber yield from the WSA is governed by land use allocation. If the land is allocated to management prescriptions which preclude regulated harvest, timber yield becomes zero. Therefore, under the unsuitable alternative, yield estimates vary with management emphasis. In the Forest Plan, yield estimates were determined using a "maximum commodity outputs" concept. This allocation classifies 13,580 acres as suitable for timber production, which is 68 percent of the capable forest land within the WSA. Most of the suitable forest land (69 percent) is in the spruce-fir timber type, and 75 percent of the suitable forest land is presently occupied by sawtimber size trees.

The following table displays acres of suitable timber by type and size class:

Area of Suitable Timber by Type and Stand Size Class

Timber Type	Stand Size Class				
	Non-stocked (Acres)	Seedling/ sapling (Acres)	Pole timber (Acres)	Saw-timber (Acres)	Total
Ponderosa pine	-	-	-	-	-0-
Spruce-fir	56	-	40	8,735	8,814
Douglas-fir	-	-	-	814	814
Aspen	-	-	-	3,935	3,952
Total	56	-0-	40	13,484	13,580

The long-term sustained yield on this suitable timber land is computed from the estimated growth rate of managed stands multiplied times the number of suitable forest acres. Yield estimates by timber type are shown below:

Long-Term Sustained Yield of Suitable Forest Land by Timber Type

Type	Thousand Cubic Feet Per Year	Thousand Board Feet Per Year
Ponderosa pine	0	0
Spruce-fir	476	1,904
Douglas-fir	45	180
Aspen	79	316
Total	600	2,400

A maximum of 2.4 million board feet (MMBF) of timber could be produced annually under the unsuitable alternative, all of which would be foregone under the suitable alternative. By placing the 13,580 acres under timber management, additional non-timber benefits would also accrue. Timber harvesting results in increased forage available to both domestic livestock and wildlife, and also affords opportunities for fuels treatment for fire hazard reduction. Increased water yield is also a result of timber management.

There are additional assumptions concerning the 2.4 MMBF per year that could be produced under the unsuitable alternative. One is that, although this volume would be added to the long-term productive capacity of the Forest, it would not necessarily be immediately available for harvest. The area would require a well-planned road system in order to access suitable timber. Logistics and budgetary restrictions could cause such a project to span several years or more. Also, this estimate is not to imply that every year 2.4 MMBF of timber would be harvested from the WSA. It is an average annual harvest and could fluctuate depending on the annual planned sales program over the entire Forest.

The WSA is relatively close to operational sawmills located near Pagosa Springs and in Chama, New Mexico. Because of this location, sales from the WSA would most likely be readily purchased. Under the suitable alternatives, this volume would not be available.

WATER

Water Yield

Under the suitable alternative, most water management activities on the WSA, except cloud seeding, would be excluded unless projects were given special approval by the President of the United States. Most alpine snowpack management activities, such as snowfences or small clearcuts are incompatible with wilderness management.

Under the unsuitable alternative, the area would be available for a range of water management activites, most of which would be concentrated

in the spruce-fir and aspen vegetative zones. Through application of patch clearcuts and other water management techniques, yield could be increased from 49,355 acre-feet per year to a maximum of 50,557 acre-feet per year. This represents a 2.4 percent water yield increase under the unsuitable alternative.

Water Quality

Under the unsuitable alternative, road construction and timber harvesting could be expected to increase sediment yield by 10 to 20 percent, depending on the type and amount of road construction and timber harvesting. Through application of mitigating measures, this additional sediment yield could be maintained within allowable sediment limits.

Under the suitable alternative, water quality could be maintained at existing high levels, although some degradation could occur from concentrations of visitors along streams and at Opal and Crater Lakes. Mitigation measures available include public education, restrictions on camping, and limitations on numbers of users.

Water quality classifications and standards assigned by the Colorado Water Quality Commission would emphasize maintenance of existing quality under the suitable alternative but would allow some degradation under the unsuitable alternative.

Water Uses and Water Rights

Neither the unsuitable or the suitable alternative would significantly affect existing water uses within the WSA. The suitable alternative would preclude development of hydro-electric sites, although no interest in such projects is anticipated. The potential to augment supplies for growing industrial and agricultural water needs downstream would decrease under the suitable alternative. Opportunities to meet identified water development needs for livestock grazing in the WSA could be provided under the unsuitable alternative but might be more difficult under the suitable alternative because of the restrictions on using mechanized equipment.

MINERALS

The two alternatives differ significantly in their effects on the various stages of mineral exploration and development. Mineral exploration activities can legally take place under both alternatives and may be undertaken regardless of designation. If a company has adequate time to do the required exploration and is not unreasonably restricted in access and movement within the area, the feasibility of developing a mineral resource will be based mainly on the costs of doing business. This will be the case under the unsuitable alternative. If, on the other hand, a company foresees that it will not have time to validate its claims by the December 31, 1983 withdrawal deadline, or that access and movement will be severely restricted, the company may be discouraged from further investment in exploration efforts. The additional costs of mitigation and restoration for exploration and development could then

make a normally feasible project uneconomical under the suitable alternative. This could have the additional effect of decreasing the likelihood of significant mineral discovery and development under the suitable alternative, as well as increasing the cost of administering mineral activities.

Rehabilitation of disturbed sites to a condition suitable for semi-primitive motorized or nonmotorized recreation under the unsuitable alternative is feasible and reasonable. This would involve regrading, revegetating, and restoring production of the land but not necessarily restoring the original contours of the land surface. Large flat areas may remain although the area would be essentially natural in character. Rehabilitation of disturbed sites to a condition suitable for wilderness would mean restoration of natural ecosystems. In many cases, this degree of restoration is probably not technically or economically feasible in the short term.

Designation of the WSA as wilderness by Congress would withdraw the WSA from mineral location and leasing activities after midnight December 31, 1983, subject to valid existing rights.

LAND STATUS

The suitable alternative could result in withdrawal of the area from mineral entry. The mineral withdrawal would occur after December 31, 1983, under provisions of the 1964 Wilderness Act. Under the unsuitable alternative, there is a moderate possiblity of additional land being taken to patent under provisions of existing mining laws.

LANDFORM AND SOILS

The unsuitable alternative would allow a number of potential soil disturbing practices, although on slopes less than 30 percent, soils in the WSA could support most activities with little damage. Most soils on these slopes are quite productive and recover quickly from disturbances. On steeper slopes, however, erosion hazard and risk of slope failures increase. This is especially true with Leal and Castellia soils, where application of mitigating measures would be necessary to maintain soil resource damage within tolerable limits.

The suitable alternative would have little effect on the soils resource. Natural forces and erosion activities presently operating would continue at current levels. There would be no major increases in erosion or sedimentation.

PROTECTION

Air Quality

There is no evidence to suggest that selection of either alternative would adversely impact either the current Class II air quality designation or the air quality protection requirements within or without the WSA.

Fire

Under the suitable alternative, fire could potentially resume its natural role in the ecology of the area. Because of its limited size, as well as the need to protect adjacent areas from wildfire, it would not be possible to implement a complete natural fire policy. Nevertheless, a fire management policy incorporating the use of naturally occurring fires burning within prescription could be implemented to promote a wilderness environment truly shaped by naturally occurring phenomena. Without such a policy, wildfire occurrence and intensity would increase in the long-run due to natural accumulation of ground fuels. As the possibility of a major fire increases, adjacent lands would be increasingly threatened as well. Under this alternative, transportation of personnel to fires as well as suppression efforts would be generally restricted to non-mechanical means. This limitation increases response time and increases the likelihood of larger fires.

Under the unsuitable alternative, a fire management policy could be implemented which includes opportunities to reduce ground fuels through timber harvesting, prescribed burning and by mechanical means. Increased use of the area could increase the occurrence of man-caused fires.

Integrated Pest Management

Under the suitable alternative, opportunities for using an integrated approach to pest management would be very limited. Prevention and control of insect and disease outbreaks using integrated pest management would be restricted to those situations in which non-wilderness values on adjacent lands are threatened. Forest residues would accumulate and decay through natural processes and could provide suitable conditions for insect and disease epidemics.

Under the unsuitable alternative, opportunities would be available to coordinate pest management with other resource management activities. Chemical control of noxious weeds and removal of dead wood through timber sales for prevention and control of insect outbreaks are examples of such activities.

VEGETATION

Under the suitable alternative, vegetation within the WSA would continue to be influenced almost exclusively by natural ecological forces. Livestock grazing would continue to be a major use unless significant mineral development occurs. Mining would remove some land from production, although reclamation could return disturbed areas to production over time. Vegetative composition and productivity could be reduced due to the slow recovery of fragile ecosystems, especially at higher elevations.

Under the unsuitable alternative, vegetation could be modified through timber harvesting, wildlife habitat and range improvement and other land activities.

ECONOMIC AND SOCIAL IMPACTS

The management regime for the South San Juan Wilderness Expansion Study Area will have certain social and economic effects in the surrounding area. These effects were estimated using a regional Input-Output (I-O) model called IMPLAN. Some basic assumptions involved in using the model are as follows: Estimates of resource outputs and activities resulting from management of the WSA are based on a hypothetical point in time at which resource potentials are being fully realized. Although this point may never actually be reached, it was used as a reference point from which to evaluate the social and economic ramifications of two alternative regimes for the area. This is not an entirely legitimate use of I-O models in that they are built using historic data and therefore are not responsive to regional economic changes over time. They are most adaptable to investigating short-term effects as they relate to population, income, and employment. The model was used to investigate changes at some future date based on the assumption that presently existing relationships between forest outputs and such parameters as population, income, and employment levels will remain unchanged.

POPULATION, EMPLOYMENT, AND INCOME

Neither the suitable nor the unsuitable alternative would have a significant effect on population within the local area. Under the suitable alternative, outputs and uses of the WSA would be associated with approximately 15 jobs in the local area producing an income of approximately $228,000. Half of these jobs would be in the wholesale and retail trade sectors. Under the unsuitable alternative, outputs and activities from the area would be associated with approximately 46 jobs producing an income of $735,000. Sixteen of these jobs are in the wholesale and retail trade sectors, and approxmiately 11 would be in the logging and sawmilling sector, where approximately 2.4 million board feet of timber per year from the area would be processed. The remaining 19 jobs would be in a variety of other sectors. No estimates of mineral outputs were made, although if major development occurs, population and employment patterns would change in response to such development.

LIFESTYLE

Neither alternative would significantly alter lifestyles in the area. The only local industry that might be affected to a measurable degree is timber, although fluctuations in national and regional markets have a greater effect than would the availability of 22,131 acres of land for timber management.

ATTITUDES, BELIEFS, AND VALUES

Many people in the area, especially newer residents, tend to favor preservation of natural areas such as those within the WSA. Others more oriented toward land-based economies such as agriculture, feel that resources in the WSA should be used to support jobs and improve standards of living in the area. A certain amount of polarization and resentment would result from implementing either alternative.

SOCIAL ORGANIZATION

Neither alternative would significantly affect the level or type of social services available in the area. The suitable alternative would result in less payments to counties in the long-run as a result of lower timber and livestock resource outputs.

POPULATION AND LAND USES

Neither alternative would significantly affect land uses and population distribution in the area.

COST-EFFICIENCY ANALYSIS

An economic efficiency analysis was carried out to determine an incremental present net value (PNV) of wilderness designation for the WSA. This involved estimating resource outputs from the area under each alternative (See Table II-1), and placing dollar values on these outputs. Prices used were the same values used in the Forest-wide planning effort. Results of the analysis are shown in Table IV-1.

The table shows that the incremental PNV of the suitable alternative is negative under both discount rates. "Incremental" refers to the net difference between the PNV's of the suitable and unsuitable alternatives. Based on the outputs and costs considered, the suitable alternative would result in a lowered cost-efficiency of overall management of the Forest. It must be recognized that certain intangible benefits and costs, for which quantification was not possible, were not included in this analysis. An example of such an intangible benefit would be the vicarious satisfaction derived by some individuals in knowing that the area is protected under a wilderness designation even though they have no intention of ever visiting the area themselves. The higher outputs for timber under the unsuitable alternative account for a large proportion of the difference between alternatives. Minerals benefits were not included in the analysis because of lack of accurate information concerning the resources and dollar values involved.

WILDERNESS SUITABILITY OR UNSUITABILITY

OVERVIEW

The standards to be met by components of the National Wilderness Preservation System (NWPS) were established in the Wilderness Act of 1964. Forest Service policy requires that capability, availability and need for wilderness be established prior to determining the suitability or unsuitability of an area for inclusion in the NWPS. These three criteria are discussed below.

WILDERNESS CAPABILITY

Wilderness capability is analyzed without regard to either the need for more wilderness or the availability of the area for wilderness designation. It is determined by the degree to which an area possesses the basic characteristics necessary for wilderness designation as well as the degree to which an area can be managed for wilderness.

TABLE IV-1

Results of Cost-Efficiency Analysis for the South San Juan Wilderness Expansion Study Area Using Discount Rates of Four Percent and Seven and One-Eighth Percent. (All figures are in thousands of 1978 dollars.)

Resource/Cost	Present Values Based On 4% Discount Rate		Present Values Based On 7-1/8% Discount Rate	
	Suitable Alternative	Unsuitable Alternative	Suitable Alternative	Unsuitable Alternative
Timber	$ 0	$ 1,224	$ 0	$ 775
Water	20,301	20,623	12,846	13,050
Recreation				
Wilderness	2,685	0	1,699	0
Non-wilderness	0	2,750	0	1,740
Range	322	344	204	218
Total Benefits	23,308	24,941	14,749	15,783
Forest Service Costs	1,692	3,167	1,079	1,989
Total Present Net Value (PNV)	21,616	21,774	13,670	13,794
Incremental PNV of Suitable Alternative	-158		-124	

With respect to the first of these two criteria, the Wilderness Attribute Rating System (WARS), which was developed during RARE II and reconfirmed during the latest planning effort, indicates the degree to which an area possesses wilderness attributes. The system involves a rating for each of several attributes, which are then summed to arrive at a composite WARS rating. Possible scores range from 4 to 28, with 28 indicating possession of optimum wilderness characteristics. Following is a summary of the WARS rating for the South San Juan Wilderness Expansion Study Area (RARE II Areas No. D-284 and E-284), which is composed of two separate areas, Montezuma Peak and V-Rock Trail. Detailed worksheets are on file in the planning records.

Wilderness Attribute	Rating	
	Montezuma Peak	V-Rock
Influence on Natural Integrity	6	5
Influence on Apparent Naturalness	6	4
Solitude Opportunity	4	4
Primitive Recreation Opportunity	4	4
Composite WARS rating	20	17
Supplementary Wilderness Attributes	3	2
Scenic Value	4	4

The rating of 20 for Montezuma Peak is 15th and V-Rock Trail rating of 17 is 25th among the 38 RARE II areas on the San Juan National Forest. The rating scale ranges from 4 to 28, with 28 indicating possession of optimum wilderness characteristics. Of the 300 RARE II areas in Colorado, the median rating was 19. Thus, there is only a moderate representation of wilderness characteristics on the WSA.

The second element of wilderness capability is its "manageability" as wilderness. The most uncertain aspect of manageability involves future development of mineral resources, primarily in the northern and western portions of Montezuma Peak throughout the V-Rock Trail area. The following relate specifically to manageability of the area for wilderness:

1. Ability to Manage the Area as an Enduring Resource of Wilderness and to Protect and Manage its Natural Character

   Recreation, grazing and other natural resource uses can be managed in the WSA to protect wilderness character. Although surface disturbances relating to mineral development would be controlled under Forest Service Surface Protection Regulations (36 CFR 228), mining impacts should be expected. Impacts from exploration operations would be minimal, but if major discoveries are made, impacts could be severe. Large scale mineral activity is not compatible with a wilderness environment. Roads necessary to access mineral development could also have significant impacts on the wilderness character of the area. Such developments would limit the ability to manage the area as an enduring resource of wilderness as well as the ability to protect and manage its natural character.

2. Size and Shape of the Area

The 32,800 acre WSA is composed of two separate areas, both of which adjoin the South San Juan Wilderness. The Montezuma Peak area is relatively compact, and boundaries are determined by well defined topographic features in most areas. The V-Rock Trail area is relatively long and narrow, and boundaries are determined by well defined topographic features on the east and north but not on the west and south. With respect to size and shape, the WSA would generally be manageable as wilderness.

3. Location Relative to External Influences

The Montezuma Peak area is located approximately 10 miles from U. S. Highway #160 and is within 1/8 mile from Forest Roads #667 to the west and #684 to the north. Additional Forest Roads from the communities of Summitville and Platora on the Rio Grande National Forest come within 1/4 mile of the area on the north and east. The V-Rock Trail area is approximately five miles from U. S. Highway #84 and is within 1/2 mile of Forest Road #663 on the west and within 1/8 mile of Forest Road #660 on the north. Access to both areas is adequate, yet neither area is so close to a major highway as to detract from the wilderness environment.

Considerable activity is taking place on lands adjacent to the WSA. Timber activity and related roads are located to the west and south of V-Rock Trail. Exploratory core drilling has been conducted near Quartz Creek in the Montezuma Peak area as well as to the north of this area. Appreciable quantities of lead, zinc, silver, and gold have been produced from mining districts adjacent to the WSA as well.

In summary, the WSA is located adjacent to several areas of resource activity which have a moderate potential to detract from the manageability of the area as wilderness.

4. Boundaries

Boundaries of the WSA could be located on the ground to:

- Avoid conflict with important existing or potential public uses and developments.

- Be readily and accurately described.

- Utilize features in many areas that constitute a barrier to prohibited use and act as a shield to protect wilderness environment.

- Provide an opportunity for access and trailhead facilities.

Boundary location therefore does not pose a major problem with respect to manageability of the area as wilderness.

Based on an analysis of both manageability and possession of wilderness characteristics, the South San Juan Wilderness Expansion Study Area has a moderate capability for wilderness.

WILDERNESS AVAILABILITY

Value comparison

Availability of an area for wilderness designation is determined, in part, by a comparison of the value of the wilderness resource with the value of non-wilderness resources forgone under the suitable alternative. In theory, the values of the wilderness resource, both tangible and intangible, should be greater than the values foregone if the suitable alternative is to be recommended. However, the highest and best use of an area for wilderness in economic terms is difficult to assess because of the difficulty of establishing acceptable monetary values for the intangible benefits involved.

Wilderness values on the WSA include:

-the potential to provide the opportunity for a wilderness recreation experience to a maximum of 156 people at one time (PAOT); and

-a degree of protection to natural ecosystems, wildlife, water quality, and other resources.

Timber, wildlife habitat, and potential mineral values represent the most significant values to be foregone under the suitable alternative. The WSA includes 13,580 acres of land available and capable of timber production on which a maximum of 2.4 million board feet of spruce-fir, Douglas-fir, and aspen could be harvested annually. Based on an average bid price of $24 per thousand board feet (in 1978 dollar terms), this represents approximately $57,600 per year in timber value foregone.

Estimates of mineral potential in the WSA are moderate to high, but no attempt has been made to quantify the values involved. Both the suitable and unsuitable alternatives would allow mineral exploration under appropriate safeguards, although the suitable alternative would place additional constraints that would increase costs to the operator. Under this alternative, significant minerals discovery could be foregone as a result of the December 31, 1983 minerals withdrawal deadline established by the Wilderness Act of 1964.

Although recreation would constitute a major use of the WSA under the suitable alternative, the type of recreation, by its very nature, results in a much lower capacity than would otherwise be the case. Therefore, even though the value of a wilderness recreation visitor day ($8.00) is higher than a dispersed recreation visitor day ($3.00), the higher use that could take place under the unsuitable alternative results in a net recreation value foregone under the suitable alternative. This is summarized below:

	Suitable Alternative	Unsuitable Alternative
Recreation Value	$8.00/Recreation Visitor Day	$3.00/Recreation Visitor Day
Recreation Capacity	15.6 Thousand Recreation Visitor Days/Year	42.7 Thousand Recreation Visitor Days/Year
Total Recreation Value	$124,800/Year	$128,100/Year

The recreation value foregone under the suitable alternative is therefore $3,300 per year.

The suitable alternative would preclude projects designed to increase water yield from the WSA. The suitable alternative would also decrease the opportunity to construct water storage and related facilities in the WSA since water improvements in wilderness require Presidential approval. Currently there are no proposals to construct water developments for livestock or other resources in the WSA.

Existing Constraints and Encumbrances

With the exception of 30 acres of patented mining claims in the Montezuma Peak Area, all land within the WSA is National Forest System land. Activities on unpatented mining claims would be governed by the Forest Service Surface Protection Regulations (36 CFR 228) although unavoidable surface impacts and access routes could have the effect of reducing wilderness values.

Effect of Wilderness Designation and Management on Adjacent Lands

The WSA is topographically well defined, with the exception of the western and southern boundaries of the V-Rock area, which adjoin privately owned land. No transportation or utility corridors are proposed through the area. Trailhead and access facilities would be similar with or without wilderness designation. There are no anticipated adverse effects of wilderness designation on the management of adjacent lands.

Summary

The South San Juan Wilderness Expansion Study Area cannot be considered available for wilderness. The most significant opportunities foregone under the suitable alternative relate to minerals, timber, and wildlife habitat. The mineral potential of the WSA is such that the probability of a significant mineral discovery is fairly high under the unsuitable aternative, but less so under the suitable alternative. Timber resource

opportunities would be foregone under the suitable alternative although the cost-efficiency of timber management would be low in many areas of the WSA. The opportunity to coordinate wildlife habitat improvement projects with other activities, such as timber harvesting, would also be foregone under the suitable alternative. The suitable alternative would forgo the opportunity to manage for semi-primitive motorized recreation, thereby failing to address Colorado SCORP recommendations. The values that would be foregone appear to outweigh the benefits that would accrue under the suitable alternative, and therefore, the area is not considered available for wilderness.

WILDERNESS NEED

RARE II dealt with "wilderness need" on a National basis and the process included extensive public involvement. The San Juan National Forest Land and Resource Management Planning process considered the current and future public need for additional designated wilderness in the general vicinity of the WSA.

In considering the need for wilderness, certain assumptions were made:

-Visits to designated wilderness will increase with both an increasing population and a growing awareness of wilderness.

-Some undeveloped lands provide opportunities for a primitive type of recreation outside wilderness.

-Within social and biological limits, management increases the capacity of established wildernesses to support human use without unacceptable depreciation of the wilderness resource.

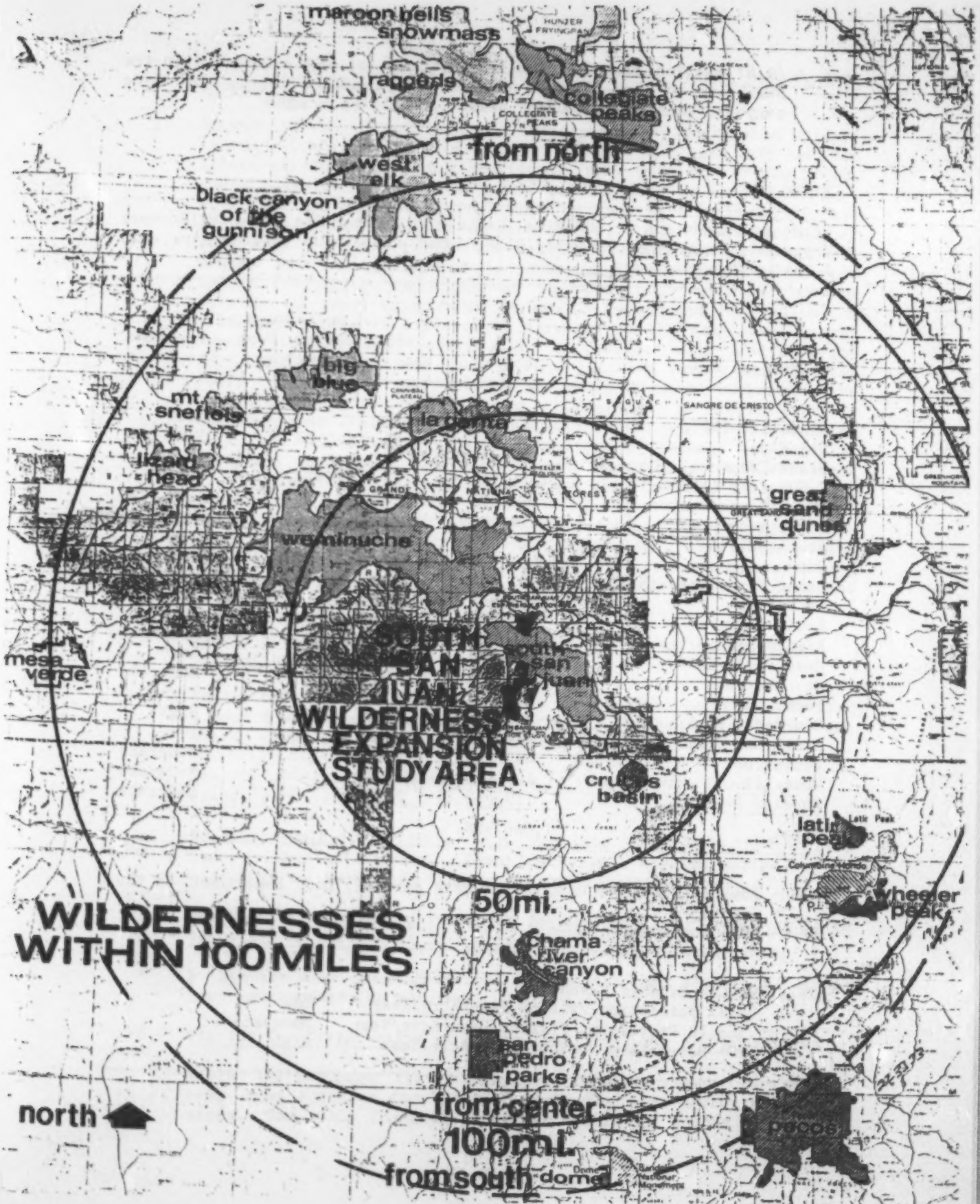
The following factors were considered in determining whether the WSA is needed for wilderness:

1. Location, Size, and Type of Other Wildernesses in the General Vicinity and Their Distance from the Wilderness Study Area

   Prior to 1980, there were twelve wildernesses within a 100-mile radius of the WSA, with a total of 1,026,720 acres. Eight are National Forest System wildernesses and four are administered by the National Park Service. With passage of the New Mexico Wilderness Act of 1980 and the Colorado Wilderness Act of 1980, Congress increased the size of the four National Forest System wildernesses and established seven new wildernesses. The new wildernesses are all within the National Forest System and contain a total of 616,420 acres. There are, therefore, nineteen wildernesses, totaling almost 1,667,000 within the 100-mile radius of the WSA. Fifteen are in the National Forest System, and four are within the National Park System.

   Figure IV-1 shows the location of the wildernesses within a 100-mile radius of the WSA. Table IV-2 lists acres and recreation use on wildernesses in the vicinity of the WSA. The table indicates that there is a large acreage base in designated wildernesses

FIGURE IV-1


maroon bells
snowmass
raggeds
collegiate peaks
from north
west elk
black canyon of the gunnison
big blue
mt. sneffels
la garita
lizard head
weminuche
great sand dunes
mesa verde
south san juan
WILDERNESS EXPANSION STUDY AREA
cruces basin
latir peak
wheeler peak
50mi.
WILDERNESSES WITHIN 100 MILES
chama river canyon
san pedro parks
from center
100mi.
from south
north
pecos
dome

(1.67 million acres) in the vicinity of the WSA. Included in the NWPS are a variety of ecosystem and landform types, including canyons, sand dunes, rugged peaks, and alpine meadows.

TABLE IV-2

Wildernesses Within a 100-Mile Radius of South San Juan Wilderness Expansion Study Area, Showing Size, Total Recreation Visitor Days, and Relative Use Ratings

Wilderness Area	Acres	1980 Use	Recreation Visitor Days Acre/Year	Relative Use Rating
Bandelier (NPS)	23,267	NA	NA	Low*
Big Blue	97,700	NA	NA	Low*
Black Canyon of the Gunnison (NPS)	11,180	NA	NA	Low*
Chama River Canyon	50,260	5,600	.11	Low
Collegiate	159,900	153,200	.96	High
Cruces Basin	18,000	1,600	.09	Low
Dome	5,200	NA	NA	Low*
Great Sand Dunes (NPS)	33,450	NA	NA	Low*
La Garita	108,486	32,300	.30	Low
Latir Peak	20,000	1,500	.08	Low
Lizard Head	40,000	21,000	.53	Moderate
Mesa Verde (NPS)	8,100	NA	NA	Low*
Mt. Sneffels	16,200	11,100	.69	Moderate
Pecos	223,333	198,300	.89	High
San Pedro Parks	41,130	50,200	1.22	High
South San Juan	133,463	41,500	.31	Low
Weminuche	463,224	255,400	.55	Moderate
West Elk	194,412	101,500	.52	Moderate
Wheeler Peak	19,663	9,500	.48	Moderate
Total	1,666,968			

NPS - Administered by the National Park Service, U.S. Department of the Interior
NA - Data not available
* - Estimated relative use rating.

Relative Use Ratings Based on:

0-.35 Recreation Visitor Days/Acre/Year	Low
.36-.70 Recreation Visitor Days/Acre/Year	Moderate
.70+ Recreation Visitor Days/Acre/Year	High

2. Present Visitor Pressure on Other Wildernesses, Trends in Use, and Changing Patterns of Use

Because of the large land area represented by designated wildernesses within a 100-mile radius of the WSA, as well as the relatively low population density in this part of the Southwest, overall visitor pressure on other wildernesses is relatively low. This can be partially explained by the fact that wilderness recreation experiences, by definition, require low user density per unit area. Therefore, the low visitor pressure on nearby wildernesses can be interpreted to indicate that existing areas are indeed fulfilling their purpose in providing "opportunities for solitude in areas untrammeled by man." But demand for and use on wilderness areas is expected to increase in the immediate future. Trends indicate that individuals and families will tend to spend more of their vacation time in one location rather than on the road. Wilderness trips provide an opportunity to experience the outdoors in a natural setting, along with a unique type of challenge not available in urban areas. More people are realizing this, and wilderness visits are expected to increase accordingly. Increases in leisure time as well as a growing national awareness of environmental matters will influence this trend as well.

The overall low visitor pressure on nearby wildernesses does not mean that localized over-use is not occurring. Many areas within the San Juan National Forest are very popular, and during summer months use is at such levels that site degradation occurs and wilderness experiences may be impaired.

3. Lands' Ability to Provide Opportunities for Unconfined Outdoor Recreation Experiences

While the WSA has high potential to provide opportunities for unconfined outdoor recreation experiences, these opportunities are not in short supply in the surrounding area.

4. Ability of Plant and Animal Species to Compete with People and Projects

Natural ecological forces will continue relatively undisturbed under either alternative. Plant and animal species native to the area will be maintained under either alternative.

5. The Need to Provide Sanctuary for Species that have Demonstrated an Inability to Survive in Less Primitive Surroundings

No species have been identified on the WSA that require a wilderness environment for survival.

6. Provide for Preservation of Unique Landform Types and Ecosystems

Table III-1 (page III-2) compares the occurrence of various ecosystems found on the WSA with those found on nearby wilderness areas. The table indicates that the WSA is not unique relative to

other nearby wildernesses in ecosystem composition. There are no unique landforms in the WSA that are not represented in other wildernesses.

Summary

The analysis indicates that the WSA is not needed as an addition to the National Wilderness Preservation System. It includes ecosystems and landforms found in the Weminuche, the South San Juan, and other nearby wildernesses. There is no shortage of opportunities for unconfined recreation experiences or opportunities for solitude in the area.

OTHER CONSEQUENCES

None known.

SHORT-TERM USES OF MAN'S ENVIRONMENT vs. THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

There would be no direct effects on long-term productivity or renewable resources resulting from either alternative under consideration. The increased likelihood of minerals activity under the unsuitable alternative would increase the possibility of long-term effects on the renewable resource productivity of the land. However, most surface resource effects caused by mining could be adequately mitigated under Forest Service Surface Protection Regulations (36 CFR 228).

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

With the exception of wilderness opportunities and minerals, there would be no other irreversible or irretrievable commitment of resources under the unsuitable alternative. "Irretrievable" refers to a permanent loss of resource production resulting from management decisions which are not irreversible, whereas "irreversible" refers to long-term unavailability of a resource. Mining under the unsuitable alternative represents an irreversible commitment of non-renewable mineral resources. Mining activity would also involve minimal commitments of livestock forage and timber, as areas become disturbed. By using proper reclamation techniques, however, losses of production can be made short-lived and insignificant in quantity. The wilderness resource could be irreversibly committed, depending on how the area was to be managed under the unsuitable alternative. Development could impact the area to the extent that it no longer qualified for wilderness designation, in which case the wilderness resource would be irreversibly lost.

Under the suitable alternative, mineral resources could be irreversibly committed following the minerals withdrawal deadline after 1983. Certain amounts of other resource production, including water, livestock forage, and timber, would be irretrievably lost as a result of the inability to carry out various management activities in a wilderness area. Irretrievable resources are limited to the difference between quantities produced under the suitable and the unsuitable alternatives.

PROBABLE ADVERSE EFFECTS THAT CANNOT BE AVOIDED

SUITABLE ALTERNATIVE

-There would be a decrease in the opportunity and an increase in the cost of mineral exploration and development because of the need for more stringent mitigation and rehabilitation measures.

-There would be less opportunities for developing a variety of uses. There would be a loss of semi-primitive motorized recreation opportunities.

-Yield of wood products and the ability to manage timber would be lost.

-Various amounts of water and livestock forage would be foregone.

UNSUITABLE ALTERNATIVE

-There could be an eventual irreversible loss of wilderness character through mining, recreation, and timber management activities in the area.

-There would be a decrease in wilderness values and wilderness recreation opportunities.

CONFLICT WITH OTHER GOVERNMENT AGENCY PLANS

There are no known conflicts with plans of other government agencies under either alternative.

CHAPTER V

GLOSSARY

The following is a partial glossary of terms that may be helpful in understanding this report. A more complete glossary can be found in the draft Environmental Impact Statement for the San Juan National Forest, Forest Plan.

Available (Forest Land) - Forest land which has not been legislatively withdrawn or administratively withdrawn from timber production by the Secretary or the Chief of the Forest Service. This classification includes RARE II further planning areas and administrative designation, below the Chief's level, withdrawing land from timber production.

Capable (Forest Land)- Forest land which is capable of growing industrial crops of wood at or above the minimum biological growth potential of 20 cubic feet of wood per acre per year. This classification includes both accessible and inaccessible, stock and non-stocked land.

Continuous Grazing - The grazing of a specific unit by livestock throughout a year or for that part of the year during which grazing is feasible.

Deferred (Forest Land) - Forest land which has been legislatively or administratively designated by the Secretary or Chief for wilderness study or possible additions to the Wilderness System. This classification includes RARE II areas designated as wilderness, but does not include RARE II areas designated for further planning.

Deferred Rotation - Discontinuance of grazing on various parts of a range in succeeding years, allowing each part to rest successively during the growing season to permit seed production, establishment of seedlings or restoration of plant vigor.

Diversity - The relative degree of abundance of wildlife species, plant species, communities, habitat or habitat features per unit of area.

Input-Output Analysis Model (I-O) - A quantitative study of the interdependence of a group of activities based on the relationship between inputs and outputs of the activities. The basic tool of analysis is a square input-output table, interaction model, for a given period that shows simultaneously for each activity the value of inputs and outputs, as well as the value of transactions within each activity itself. It has especially been applied to the economy and the industries into which the economy can be divided.

Integrated Pest Management - A management strategy for suppression of Forest pests which integrates silvicultural, mechanical, biological, and chemical suppression strategies that achieve greater efficiency and safety than the same strategies used alone.

Leasable Minerals - Coal, oil, gas, phosphate, sodium, potassium, oil shale, sulphur (in Louisiana and New Mexico), and geothermal steam.

Locatable Minerals - Those hardrock minerals which are mined and processed for the recovery of metals. May include certain non-metallic minerals and uncommon varieties of mineral materials such as valuable and distinctive deposits of limestone or silica. May include any solid natural inorganic substance occurring in the crust of the earth, except for the common varieties of mineral materials and leasable minerals.

Present Net Value - The difference between the total discounted benefits and the total discounted costs.

Primitive Recreation - A classification of recreation opportunities characterized by an essentially unmodified environment, where trails may be present but structures are rare, and where probability of isolation from the sights and sounds of man is extremely high.

Reserved (Forest Land) - Forest land which has been legislatively or administratively withdrawn from timber production on a permanent basis. Examples of this classification are wilderness areas, primitive areas, research natural areas or special interest areas, or similar formal withdrawals approved by the Chief or higher authority.

Rest-Rotation - A grazing system in which the pastures being roated receive nonuse for a period of plant recovery.

Riparian - Referring to the land bordering a stream, lake or tidewater.

Roaded Natural Recreation - A classification of recreation opportunities that characterizes a predominately natural environment with evidence of moderate permanent alternate resources and resource utilization. Evidence of the sights and sounds of man is moderate, but in harmony with the natural environment. Opportunities exist for both social interaction and moderate isolation from the sights and sound of man.

Rural Recreation - A classification of recreation opportunities that characterizes an area in which the sights and sounds of man are prevalent and the landscape has been considerably altered by the works of man.

Semi-Primitive Motorized Recreation - A classification of recreation opportunities characterized by moderately dominant alterations by man with strong evidence of primitive roads and/or trails.

Semi-Primitive Non-Motorized Recreation - A classification of recreation opportunities characterized by few and/or subtle modifications by man, and with a high probability of isolation from the sights and sounds of man.

Suitable (Forest Land) - Forest lands to be managed for timber production.

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